

### REMARKS/ARGUMENTS

Claims 1-32 are pending and stand rejected in this application. Claims 8, 10, 24, 25 and 27 have been deleted. Claims 1, 22, 23, 26 and 28-31 have been amended.

#### Claim Rejections Under 35 USC § 101

Claims 22-31 were rejected under 35 USC § 101 as allegedly being directed to non-statutory subject matter. Applicants have amended Claims 22, 23, 26, and 28-31 to more clearly state the statutory subject matter which applicant regards as the invention. All amendments to the claims are supported by the specification as filed and so no new matter has been added. As such Applicants respectfully request reconsideration of Claims 22-31.

#### Claim Rejections Under 35 USC § 112, 1st Paragraph

Claims 1-32 were rejected under 35 USC § 112 1st Paragraph as allegedly being nonenabling. The Examiner asserts that although the specification is enabling for the disclosed method in which Dijkstra's algorithm is used to evaluate a candidate primer set, the specification does not reasonably provide enablement for the step of evaluating a candidate primer set by any means. Applicants respectfully traverse the rejection.

Specifically, the Office Action refers to *In re Wands* factors for enablement of the invention. As the Examiner has correctly pointed out (see page three, last line of the office action), the specification is enabling of the disclosed method for designing primer pairs. However, the Examiner incorrectly states that Dijkstra's algorithm is the only algorithm provided for the step of evaluating a candidate primer set. The Applicant respectfully points out that contrary to what is stated in the Office Action the application is replete with references to several different algorithms that may be used for evaluating a candidate primer set (see paragraphs 34-38). For example, shortest path algorithms are discussed in detail in paragraphs 34-36 (Dijkstra's algorithm is just one example recited in the specification) and greedy algorithms (one of which is a Huffman greedy algorithm) are

discussed in detail in paragraphs 37 and 38. These algorithms and their uses are discussed in even greater detail in the general textbook Introduction to Algorithms, which is incorporated by reference. The specification need not describe or enable the invention to a layperson. Rather, it need only describe the invention to one of ordinary skill in the art [General Elect. Co. v. Brenner, 407 F. 2d 1258, 159 USPQ 335, 337 (D.C. Cir 1968). The knowledge and use of these algorithms are known to those of skill in the art, and therefore the specification is more than adequate to enable the use of these algorithms for the methods of the claimed invention.

### **Claim Rejections Under 35 USC § 112, 2<sup>nd</sup> Paragraph**

Claims 1-32 were rejected under 35 USC § 112 2<sup>nd</sup> Paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants respectfully traverse the rejection.

Specifically, the Examiner asserts that the phrase “having reduced overlap” is vague and indefinite and requests clarification of the claim language in Claim 1. Applicants have clarified the claim language that refers to “having reduced overlap” in Claim 1 and believe that the amendments to the claim render the instant rejection moot and Claim 1 and all its dependents are in condition for allowance.

Further, the Examiner states that the use of the terms “reference sequence” and “target sequence” in Claims 1, 18, and 19 is confusing and requests clarification in the claim language. The Examiner further asserts that the instant claim language fails to maintain consistent language terminology and therefore is found confusing. Applicants believe that this rejection is based on a misinterpretation of the invention recited in the cited claims. The invention involves the creation of a primer set for amplification of a target sequence, said primer set being developed based on a reference sequence. Specific examples of reference sequence/target sequence combinations are described in paragraphs [0057] and [0058]. Although Applicants feel the claims as filed are clear and supported by the specification, Applicants have amended the claim language to further clarify the present invention and hereby request that the instant rejection be withdrawn.

In addition, the Examiner asserts that the phrase “a minimal or substantially minimal number of primer pairs” is vague and indefinite, and further requests clarification of the claim language to address this issue. Applicants respectfully disagree that the phrase is not clear. As stated in paragraph [0032], “Typically the goal of the fourth step is to choose the primer pairs that allow one to amplify all or substantially all of the entire target sequence with reduced sequence amplification overlap and/or a minimal or substantially minimal number of primer pairs.” This statement is clearly saying that it is preferable to have a fewer number of primer pairs, but as one of skill would clearly recognize, the actual *number* of primer pairs required to amplify “all or substantially all” of the target sequence depends on several criteria, not the least of which is the length of the target sequence that one wishes to amplify, and the number of primer pairs initially yielded by the initial primer pair selecting step.

#### **Objection to Disclosure**

The disclosure was objected to because it contains an embedded hyperlink. Applicants have replaced paragraph [0025] containing the hyperlink with a new paragraph [0025] with the hyperlink removed. Applicants believe the specification is now in compliance with M.P.E.P. § 608.01.

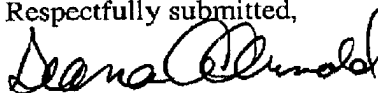
#### **Information Disclosure Statement**

Several cited references on the information disclosure statement were lined through because the dates that the information was publicly available could not be confirmed. However, Applicants have previously submitted hard copy print-outs with the dates of printing shown in the lower right-hand corner. All of the website pages were printed on November 26, 2001 except for one. The “Long PCR Reagents and Guidelines” reference was printed on June 15, 2000. Thus, the dates that the information was publicly available were provided to the Office on April 8, 2003, the date that the information disclosure statement was submitted.

Conclusion

For the reasons set forth above, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested. If a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-625-4603.

Respectfully submitted,



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